UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/668,021	09/22/2003	Michael J. Berman	03-0915	1398

24319 7590 08/29/2005

LSI LOGIC CORPORATION
1621 BARBER LANE
MS: D-106
MILPITAS, CA 95035

EXAMINER	
RACHUBA, MAURINA T	
ART UNIT	**PAPER NUMBER**
3723	

DATE MAILED: 08/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

UNITED STATES PATENT AND TRADEMARK OFFICE

COMMISSIONER FOR PATENTS
UNITED STATES PATENT AND TRADEMARK OFFICE
P.O. BOX 1450
ALEXANDRIA, VA 22313-1450
www.uspto.gov

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/668,021
Filing Date: September 22, 2003
Appellant(s): BERMAN ET AL.

Rick Barnes
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 17 June 2005.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

No evidence is relied upon by the examiner in the rejection of the claims under appeal.

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

6,477,447 LIN 11-2002

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-9 and 19-20 are rejected under 35 U.S.C. 102(a) or (e). This rejection is set forth in a prior Office Action, mailed on 19 January 2005.

(11) Response to Argument

Claims 1-7

Appellant agues that Lin does not disclose the claimed invention, in that Lin is directed to improvements in a wafer polishing subsystem, and not a conditioning subsystem. Appellant further argues that the "pressure related components" defined by Lin are directed solely to those components that control or move the wafer, and not any other part of the CMP device. The examiner strongly disagrees. Lin, column 3, lines 37-42, discloses "In addition, the pressure components applied in the embodiment of the present invention refer to, ***but not limited to, mechanical CMP pressure related components including*** a wafer carrier, a polishing pad, and mechanical arm members of a CMP machine." (emphasis added). It is the examiner's position that Lin does not limit his inventive method to only the disclosed embodiment, but to any "pressure related component" that would be part of a CMP device.

Is a "conditioner" a "pressure related component" of a CMP device? Inherently, yes. A conditioner in a CMP device is used to treat the polishing pad. If the polishing

pad is a fixed abrasive pad, the conditioner cleans the pad by loosening debris and used particles, and exposes new abrasive particles by wearing away the bond that holds the particles. If the pad is to be used with an abrasive slurry, the conditioner breaks up and removes dried or glazed slurry, and "roughens" the surface of the pad. In order for a conditioner to function, there must be a contact between the conditioner and the polishing pad. Even if the contact is only the force of gravity, there is a pressure applied between the conditioner and pad. Therefore the conditioner ***must*** be a "pressure related component". As evidence of inherency, and in support of the analysis above, the examiner cited Berman. Berman states, column 1, lines 27-38, "One method by which control of the chemical mechanical polishing process is maintained is called conditioning. During conditioning, an implement called a conditioner ***is brought into contact*** with the surface of the pad. The conditioner is intended to erode the surface of the pad, so as to expose a portion of the pad that is presumptively more uniform and clean. Conditioning the pad may be accomplished either between substrate polishing processes, or concurrently with the polishing process. Conditioning tends to generally improve important process characteristics such as substrate to substrate repeatability, polish rate stability, pad life, down time, and overall cost of system ownership. " (emphasis added). Also, column 3, lines 20-33, "it is desirable to condition the pad 16 with the conditioner 12 in a uniform and well controlled manner. Thus, it is desirable to engage the conditioner 12 ***against the surface of the pad 16 with a known and repeatable force***, and also ***with a force***

that is known and preferably uniform across the conditioner 12. " emphasis added. It is the examiner's position that Lin does anticipate the claimed invention.

Claims 8 and 19

Appellant argues that Lin does not disclose "comparing the scanned and digitized impression to a database of scanned and digitized impressions." Again, the examiner must disagree. Lin, figure 6, the abstract, column 2, lines 55-64 and columns 5 and 6, clearly discloses that the data from the film is collected and compared "the pressure distribution data on the pressure related components are systematically ***contrasted and analyzed*** in order to suitably modify the pressure related components", column 2, lines 59-61; "in addition, it is more convenient to maintain a good working order of the pressure related components with the help of the pressure distribution data set", column 2, lines 62-64; "In Step 9, the digitized pressure distribution data of the pressure related component is further ***simulated*** and ***analyzed*** by a microprocessor with fuzzy-contrasting and feedback-loop analysis methods, which provides a basis for future improvement in the CMP process of a silicon wafer whereas the layout of micro-device dies may be re-arranged due to uneven wafer surface pressure distribution. Finally, as shown in step 10, new pressure related components can be designed, and ***sets*** of input parameter guidelines can thus be established." Column 5, lines 66 through column 6, lines 8. It is the examiner's position that the only reasonable interpretation of the disclosure of Lin is that the data collected from the film is compared to previously gathered data, as claimed by applicant.

Claims 9 and 20

Appellant argues that Lin does not disclose "associating with the scanned and digitized impression data in regard to conditions of the chemical mechanical polisher at a time that the impression was created". The examiner disagrees. It is the examiner's position that any data collected by the method disclosed by Lin be inherently associated with the conditions of the polisher at the time it is collected. Lin clearly discloses that the pressure related component is subjected to various pressures during CMP operations, column 5, lines 46-48. The amount of pressure applied is a condition of the polisher at the time the impression was made (in that the mechanisms that apply the pressure are part of the polisher). Appellant has not claimed what conditions the data is to be associated with.

Response to "Comment on Examiner's Positions"

Appellant argues that they cannot find the statement "the pressure components are not limited to what applicant calls the wafer polishing subsystem but any pressure related component used in a chemical mechanical polishing system." As set forth above, Lin discloses, column 3, lines 37-42, "In addition, the pressure components applied in the embodiment of the present invention refer to, ***but not limited to, mechanical CMP pressure related components including*** a wafer carrier, a polishing pad, and mechanical arm members of a CMP machine.". The examiner has not improperly misconstrued the language of Lin.

Appellant also argues that the rational for intended use does not apply to a method of use, but to a method of making. MPEP 2111.02 states in part:

> During examination, statements in the preamble reciting the purpose or intended use of the claimed invention must be evaluated to determine whether the recited purpose or intended use results in a structural difference (or, in the case of process claims, manipulative difference) between the claimed invention and the prior art. If so, the recitation serves to limit the claim. See, e.g., In re Otto, 312 F.2d 937, 938, 136 USPQ 458, 459 (CCPA 1963).

It is the examiner's position that there is no manipulative difference between the method of Lin, and appellant's claimed invention. Appellant does not provide for the method being used with any particular conditioner, nor does appellant claim any other method steps not disclosed by Lin.

The examiner withdraws the previous comments based on *In re Casey*.

Appellant has misconstrued the examiner's reliance on Berman. Berman was cited to show that a conditioner when part of a CMP system is a pressure related component. The examiner agrees that a conditioner is a different structure than a wafer carrier. The issue is whether Lin discloses pressure related components other than wafer carriers, and if a conditioner can be considered a pressure related component. Please refer to the arguments above for further discussion of Berman as evidence of inherency.

(12) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

M. Rachuba
Primary Patent Examiner
Art Unit 3723

8/24/05

Conferees:

J. Hail

D. Banks